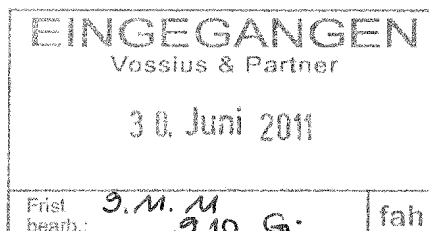




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Application No. 04 811 223.9 - 2109	Ref. M1906 EP	Date 29.06.2011
Applicant Sun Chemical Corporation		

Communication pursuant to Article 94(3) EPC

The examination of the above-identified application has revealed that it does not meet the requirements of the European Patent Convention for the reasons enclosed herewith. If the deficiencies indicated are not rectified the application may be refused pursuant to Article 97(2) EPC.

You are invited to file your observations and insofar as the deficiencies are such as to be rectifiable, to correct the indicated deficiencies within a period

of 4 months

from the notification of this communication, this period being computed in accordance with Rules 126(2) and 131(2) and (4) EPC. One set of amendments to the description, claims and drawings is to be filed within the said period on separate sheets (R. 50(1) EPC).

If filing amendments, you must identify them and indicate the basis for them in the application as filed. Failure to meet either requirement may lead to a communication from the Examining Division requesting that you correct this deficiency (R. 137(4) EPC).

Failure to comply with this invitation in due time will result in the application being deemed to be withdrawn (Art. 94(4) EPC).

The notification of this communication starts the 24-month period according to Rule 36(1)(a) EPC for filing a voluntary divisional application divided from this application or from any sequential application. For further information see Guidelines for Examination, A-IV, 1.1.1.2 and 1.1.1.4.



Hollender, C
Primary Examiner
For the Examining Division

Enclosure(s): 6 page/s reasons (Form 2906)

The examination is being carried out on the **following application documents**

Description, Pages

1-10 as published

Claims, Numbers

1-18 filed with entry into the regional phase before the EPO

1 The documents mentioned in the International Search Report (ISR) which relates to the present application are numbered D1 to D5:

D1 JP-A-10 067 959 (PATENT ABSTRACTS OF JAPAN)

D2 US-A-4 705 568

D3 US-A-4 659 848

D4 EP-A-0 147 642

D5 WO-A-2004/053003

This numbering will be adhered to in the rest of the procedure.

2 **Art. 123(2) EPC:**

2.1 The present dependent claim 14 corresponds to the unamended claim 14 of the application as published. Claim 14 is dependent from independent claim 13 which has been amended (by introduction of a reference to the reaction product as defined in any of claims 1 to 12) in order to include all embodiments as previously specified in the published dependent claims 15-25.

Since none of the originally filed and published claims 15-25 referred back to claim 14, it appears that the present back-reference of claim 14 to claim 13 may lead to previously undisclosed combinations of technical features specified in previous claims 15-25 (cf. also claims 2-12) with the technical effect as specified in claim 14.

- Hence, in order to establish that the amended claims do not contravene the requirements of Article 123(2) EPC, the applicant is invited to indicate the passages of the application as filed which provide a support for the combinations now encompassed within claim 14.
- 2.2 The same issue of amendments which may lead to previously undisclosed combinations concerns dependent 17 (previous claim 39) which refers back to independent claim 16 (previous claim 38) wherein all embodiments previously specified in dependent claims 40-50 have been inserted, while none of said previous dependent claims 40-50 made a reference to previous claim 39. Hence, in order to establish that the amended claims do not contravene the requirements of Article 123(2) EPC, the applicant is invited to indicate the passages of the application as filed which provide a support for the combinations now encompassed within claim 17.
- 3 The PCT application document D5 has been published on 24/06/2004 and claims the priority date of 11/12/2002. It has been supplied to the European Patent Office in one of its official languages, but the national fee provided for in Article 22(1) or Article 39(1) PCT has not been paid. The requirements of Article 158(2) EPC 1973 are thus not fulfilled. D5 may therefore not be considered to be comprised in the state of the art relevant to the question of novelty, pursuant to Article 54(3) and (4) EPC 1973.
- 4 An International Preliminary Report on Patentability (IPRP) has already been drawn up for the present application in accordance with the PCT. The positive conclusions drawn therein with regard to the novelty of the claimed subject-matter, in view of D1 to D4, are maintained under the corresponding provisions of the EPC.
- 5 However, concerning the inventive step issue, it appears that some serious concerns expressed herein below should be properly addressed by the applicant in the letter of reply.
- 5.1 According to page 2, lines 60-62 of the present application, the underlying problem thereof relates to the provision of additives (in the context of ink or coating compositions) that promote a better viscosity stability, or a better adhesion onto substrates, or in the best case that promote both with a single additive. In example 1, four different polymer complexes (1A, 1B, 1C and 1D)

have been prepared with four different polymers, tetraisopropyltitanate as a metal orthoester and two kinds of alkyl phosphate (amyl acid phosphate in 1A and 1C, and butyl phosphate in 1B and 1D).

However, in the Examples 2 and 3 wherein printing inks have been prepared and tested in order to estimate whether the underlying problem has been solved with the claimed additives, the polymer complex of Example 1A has been solely used in the Ink #3 (see Tables 2-4) and in Ink #7 (see Tables 5-8).

Accordingly, it appears that the extent of generalisation derived therefrom and expressed through the scope of the claimed subject-matter as specified in the independent claims 1, 13, 15, 16 and 18 of the present application (i.e. for any natural or synthetic polymer such as those specified in dependent claim 12, for any metal complex and for any kind of alkyl phosphate) is too broad and cannot be considered to be reasonable. In other words, the claims are not adequately supported by the description, because it cannot be reasonably assumed that the technical problem to which the invention is to provide a solution will actually be solved by the subject-matter of the independent claims, in their entire scope, and not only, by the limited portion of that scope as illustrated in the Examples by the Inks# 3 and 7.

- 5.2 D1 is considered to be the prior art closest to the subject-matter of the independent claims 1, 13, 15, 16 and 18 of the present application and discloses (see the PAJ abstract) a printing ink composition mainly composed, inter alia, of (A) pigment, (B) a hydroxyl group-containing resin (preferably a polyamide resin and/or a cellulose derivative), (C) a titanium-based crosslinking agent comprising a reaction product obtained by reacting (i) a titanate compound (such as tetraisopropoxytitanium) with (ii) di (polyoxyethylene alkylether) phosphate (such as dipolyoxyethylene phosphate) and (D) an organic solvent. According to D1, said printing ink composition gives a film with excellent adhesive property, heat resistance and oil resistance, is useful for printing on plastic films and the ink composition has good storage stability (i.e., viscosity stability).

The subject-matter of the independent claims 1, 13, 15, 16 and 18 therefore differs mainly from this known printing ink composition in that an alkyl phosphate is used therein instead of a di(polyoxyethylene alkylether) phosphate.

The problem to be solved by the present invention may therefore be regarded as providing an alternative to the use of the di(polyoxyethylene alkylether) phosphate in the context of the printing ink composition of D1.

The solution proposed in the independent claims of the present application cannot be considered to involve an inventive step (Articles 52(1) and 56 EPC), since alkyl phosphates are described in D1 and D2 (see the relevant passages thereof as cited in the ISR) in combination with titanium orthoester and also in the context of the promotion of the adhesion of printing ink compositions to a plastic substrate. The skilled person would therefore regard it as a normal option to select an alkyl phosphate as an alternative for the specific kind of phosphate required in D1, since alkyl phosphates can be interchanged with the kind of phosphate used in D1 where circumstances make it desirable.

Hence, the present application does not meet the requirements of Article 52(1) EPC because the claimed subject-matter does not involve an inventive step within the meaning of Article 56 EPC.

- 5.3 It appears that the results obtained in Tables 3-4 for the Ink composition #4 cannot be adequately compared with the results obtained for the Inks #1 to 3, since the overall amount of adhesion improver (titanium chelate IA10 + Synthetic Resin SK) used in said Ink composition #4 (i.e., 2.8+1) is inferior to the amount of adhesion improver used in the ink compositions #1 to 3 (i.e., 4.8); this affects, in particular, the conclusion drawn after table 4, in the lines 227-228, since the lower amount of adhesion improver added to Ink composition #4 (especially in comparison to Ink composition #3) may affect significantly the level of its air dried "One bump" results.

Moreover, the results of the tests shown in Table 3 reveal that the ink composition #3 (i.e., within the scope of the present claims) appears to be the worst from the ink compositions #1 to 4 (i.e. those containing an additive for improving the adhesion and/or viscosity stability) in terms of viscosity stability .

Accordingly, the results shown in Tables 3-4 do not provide proper and convincing evidence for any superiority (in terms of adhesion and/or viscosity stability improvements) of the claimed polymer complex in comparison to the combination of additives used in the Ink composition #4.

- 5.4 With regard to the viscosity stability aspect, the good results illustrated in Table 6 in comparison to the bad ones illustrated in Table 3 (see in particular the results for Ink compositions #1 and 3 which can be compared, respectively, with the Ink compositions #6 and 7) could lead also to derive therefrom that the stabilization of the viscosity of the ink compositions is not really linked to the nature of the adhesion improver additive, but maybe rather to the nature of other ingredients present in the printing ink, such as, e.g. the nature of the main binder or pigment(s) present therein.

- 5.5 The adhesion tests shown in Table 7 do not illustrate a superiority of the claimed additives over those known from the prior art; moreover the indication of whether these results relate to a "One Bump" or "Two Bumps" case (see page 9, lines 247-249) is missing in said Table 7.
- 6 It is not at present apparent which part of the application could serve as a basis for a new, allowable claim. Should the applicant nevertheless regard some particular matter as patentable, an independent claim should be filed taking account of Rule 43(1) EPC. The applicant should also indicate in the letter of reply the difference of the subject-matter of the new main claim vis-à-vis the state of the art (in view of the novelty requirement) and the significance thereof (i.e., why this new main claim involves an inventive step over the content and teaching of the relevant cited prior art). Moreover, it should also be born in mind that the requirements of Art. 82 EPC should be met by the amended claims. If the applicant intends to file amended claims, then due account should also be taken of further objections which are identified herein below.
- 6.1 According to line 66 of the description (see also the lines 80, 85, 92 and 103) the polymer complex, the viscosity stabilizing agent, adhesion promoting polymer complex, agent or reactive polymers (respectively) "**is** the reaction product ..." (emphasis added) rather than "**comprising** the reaction product ..." (emphasis added) as specified in the independent claims 1, 13, 15, 16 and 18 (see also line 70 and lines 74-75 of the description); this inconsistency between the claims and the description leads to doubt concerning the matter for which protection is sought, thereby rendering the claims unclear (Article 84 EPC). The inconsistency should be removed, either by amending the claims, or by amending the description [see Guidelines C-III, 4.3(iii)].
- 6.2 Likewise, the subject-matter described in the lines 90-94 of the description (which starts with "The present invention also provides a method of improving the lamination bond strength ...") does not fall within the scope of the claims. This inconsistency between the claims and the description leads to doubt concerning the matter for which protection is sought, thereby rendering the claims unclear (Article 84 EPC). The inconsistency should be removed, either by amending the claims, or by deleting this subject-matter from the description (see Guidelines C-III, 4.3(iii)).

- 7 The attention of the applicant is drawn to the fact that the application may not be amended in such a way that it contains subject-matter which extends beyond the content of the application as filed (Article 123(2) EPC).

In order to comply with the requirements of Rule 137(4) EPC, the applicant should clearly identify the amendments made, irrespective of whether they concern amendments by addition, replacement or deletion, and indicate the passages of the application as filed on which these amendments are based (see Guidelines E-II, 1).

If the applicant considers it appropriate, these indications could be submitted in handwritten form on a copy of the relevant parts of the application as filed.

- 8 Amendments in the description in order to, inter alia:

- bring the description into conformity with the wording and scope of the amended claims, and
- to meet the requirements of Rule 42(1)(b) EPC with respect to the relevant background art disclosed in D1

should be deferred until the final form of the claims has been settled.

- 9 Amendments should be made by filing replacement pages. The applicant should also take account of the requirements of Rule 50(1) EPC. If handwritten amendments are submitted, they should be clearly legible to the printer.